National Institute of Environmental Health Sciences

Journal of Allergy and Clinical Immunology: Climate change and allergic disease

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Abstract:

Climate change is potentially the largest global threat to human health ever encountered. The earth is warming, the warming is accelerating, and human actions are largely responsible. If current emissions and land use trends continue unchecked, the next generations will face more injury, disease, and death related to natural disasters and heat waves, higher rates of climate-related infections, and wide-spread malnutrition, as well as more allergic and air pollution-related morbidity and mortality. This review highlights links between global climate change and anticipated increases in prevalence and severity of asthma and related allergic disease mediated through worsening ambient air pollution and altered local and regional pollen production. The pattern of change will vary regionally depending on latitude, altitude, rainfall and storms, land-use patterns, urbanization, transportation, and energy production. The magnitude of climate change and related increases in allergic disease will be affected by how aggressively greenhouse gas mitigation strategies are pursued, but at best an average warming of 1 to 2 degrees C is certain this century. Thus, anticipation of a higher allergic disease burden will affect clinical practice as well as public health planning. A number of practical primary and secondary prevention strategies are suggested at the end of the review to assist in meeting this unprecedented public health challenge.

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Resource Description

Communication: ☑

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience: ☑

audience to whom the resource is directed

Health Professional, Public

Exposure : ☑

weather or climate related pathway by which climate change affects health

Air Pollution, Extreme Weather Event, Temperature, Unspecified Exposure

Air Pollution: Allergens, Interaction with Temperature, Ozone, Particulate Matter, Other Air Pollution

Air Pollution (other): NO2, SO2, NOx, CO, VOCs

Extreme Weather Event: Drought, Flooding, Wildfires

Temperature: Extreme Heat, Fluctuations

Geographic Feature: ☑

resource focuses on specific type of geography

Rural, Urban

Geographic Location: ☑

resource focuses on specific location

Global or Unspecified

Health Co-Benefit/Co–Harm (Adaption/Mitigation): ☑

specification of beneficial or harmful impacts to health resulting from efforts to reduce or cope with greenhouse gases

A focus of content

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Respiratory Effect

Respiratory Effect: Asthma, Upper Respiratory Allergy

Medical Community Engagement: ☑

resource focus on how the medical community discusses or acts to address health impacts of climate change

A focus of content

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Mitigation

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Children

Resource Type: ☑

format or standard characteristic of resource

Review

☑

Timescale:

time period studied

Time Scale Unspecified